

**To:** McKean, Deborah[mckean.deborah@epa.gov]  
**From:** Schmit, Ayn  
**Sent:** Mon 4/1/2013 10:15:37 PM  
**Subject:** FW: EPA Grapples With Methods For Assessing Contamination From Fracking

Note highlighted passage at end...

*Ayn E. Schmit*

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**From:** Jewett, David  
**Sent:** Monday, April 01, 2013 2:43 PM  
**To:** Digiulio, Dominic; Schmit, Ayn; Oberley, Gregory  
**Subject:** FW: EPA Grapples With Methods For Assessing Contamination From Fracking

FYI - Inside EPA article on HF-Analytical Chemistry Technical Workshop; focus is on analytical issues, but mentions GW contamination and Pavllion.

- dgj -

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**From:** Jewett, David

**Sent:** Monday, April 01, 2013 3:35 PM

**To:** Foley, Gary; Smith, Kelly; Wilkin, Rick

**Cc:** Beak, Doug; Ludwig, Ralph; Acree, Steven; Ross, Randall

**Subject:** FW: EPA Grapples With Methods For Assessing Contamination From Fracking

**From:** Overbay, Michael

**Sent:** Monday, April 01, 2013 3:27 PM

**To:** Schumacher, Brian

**Cc:** Briskin, Jeanne; Jewett, David; Gilliland, Alice; Sonich-Mullin, Cynthia

**Subject:** FW: EPA Grapples With Methods For Assessing Contamination From Fracking

**From:** Graves, Brian

**Sent:** Monday, April 01, 2013 12:51 PM

**To:** R6 6WQ-SG; Kobelski, Bruce; Lawrence, Rob; Jollie, Jeff

**Subject:** EPA Grapples With Methods For Assessing Contamination From Fracking

## **EPA Grapples With Methods For Assessing Contamination From Fracking**

Posted: April 1, 2013 InsideEPA

EPA is struggling to develop methods for analyzing potential contamination due to hydraulic fracturing for its pending study on the practice's impacts on drinking water and in some cases of alleged contamination, though some stakeholders are urging officials to craft monitoring criteria to ease their ability to assess suspected contamination.

The agency's difficulties are drawing concerns from industry stakeholders who are reiterating criticism of the methods EPA used to investigate groundwater contamination in a Wyoming aquifer, and suggesting that the same flaws could impede the larger

study's usefulness in reaching conclusions about whether fracking is safe.

EPA's study, which is being conducted in response to a request from Congress in a 2010 appropriations bill, seeks to analyze five phases of the water cycle associated with fracking: water acquisition; chemical mixing; well injection; flowback and produced water; and wastewater treatment.

The agency in November roundtable discussions flagged a number of issues officials are grappling with as the study progresses and set those topics for in-depth discussions in a series of technical workshops scheduled this spring at EPA's Research Triangle Park (RTP) campus in North Carolina.

The first of those discussions, held Feb. 25, sought suggestions from stakeholders in addressing challenges the agency faces in developing the methodology for analyzing the chemical composition of compounds in fracking fluid, flowback and produced water generated from the fracking process and wastewater effluent.

During a March 25 webinar, EPA's Brian Schumacher, of the agency's Office of Research & Development, which is jointly conducting the study with the water office, said the challenges for developing analytical methods to assess the presence of fracking chemicals, methane and other indicators of drilling pollution are significant because a large part of the study involves retrospective case studies where contamination has already occurred.

For example, Schumacher said, there is no existing standard methodology for detecting some of the analyte compounds the agency is targeting in the study, such as alcohols and amine in mixed chemical solutions such as fracking fluid or wastewater, making it difficult for the agency to use those substances in seeking to determine a link between fracking and contamination.

He said that existing agency methods for determining the presence of radionuclides -- which have been constituents of concerns in fracking wastewater because they tend to occur naturally in some shale formations -- may not be sensitive enough, though he added that EPA's air office is working on developing methodology.

Schumacher added that developing methods for assessing glycols and related compounds, which are frequently used in fracking fluids, has also presented challenges because there is no standard methodology for detecting all of the possible mixtures of glycols.

He also said the agency is struggling to determine how low of a detection limit is accurate for confirming the presence of the chemicals. "What defines how low is low enough" for detecting the presence of chemicals like glycolic compounds, Schumacher said on the March 25 call.

### **Groundwater Contamination**

An industry spokesman says EPA's method for measuring glycols highlights some of the concerns drillers have raised about EPA's approach to investigating suspected contamination in Pavillion, WY, where EPA, in a December 2011 report, for the first time publicly acknowledged that groundwater contamination of an aquifer was "likely" due to fracking chemicals.

"Specifically, the extremely low detection limits EPA sought to utilize in Pavillion led it to falsely identify compounds as present," the industry spokesman says, using glycols as one example. "Given this, there is skepticism about the level of accuracy of analytical methods using these extremely low detection limits."

The industry spokesman says EPA needs better parameters for this. "Just because something is detected, the source cannot be assumed. Each potential source needs to be ruled out before a definitive case can be made," the industry spokesman says, adding that was not done in Pavillion.

Industry and Republican lawmakers have widely characterized EPA's Pavillion study as flawed, citing a host of concerns including that EPA's sampling methodology could have contributed to the contamination, that the agency ignored data showing evidence that contaminants were naturally occurring, and that the conclusions relied on data sets that are too narrow to support the draft conclusions.

Industry has charged that the approach EPA used in Pavillion raised questions about the larger study of fracking and drinking water.

For example, American Petroleum Institute upstream director Erik Milito told reporters last October "If they [EPA] continue down a sloppy path, we're going to get sloppy results." Seizing on U.S. Geological Survey data taken from Pavillion that industry says refutes EPA's findings and the agency says is consistent with its findings, Milito said the flaws in the Wyoming sampling methodology may raise questions about the larger study because "EPA may assume it's producing good science" and ultimately use conclusions to "justify changes in public policy" and regulation.

During the Feb. 25 workshop, which included EPA regional officials, academic researchers, state regulators, industry representatives, U.S. Geological Survey scientists and others, participants offered a number of recommendations for improving EPA's approach to analyzing fracking mixtures, including that EPA determine "meaningful" time frames for retaining samples for "archiving and regulatory acceptance purposes" and that the agency establish criteria for how to conduct baseline, or "pre-drilling" sampling.

"One of the biggest questions was on sampling -- we would love some guidance on baseline sampling," Schumacher said.

EPA and other agencies have increasingly highlighted the importance of collecting baseline data prior to drilling, noting that a lack of background information on groundwater quality can undermine efforts to determine whether fracking or drilling activities can contribute to contamination of drinking water resources.

In the Pavillion example, EPA noted that the lack of baseline data hindered the groundwater assessment.

### **Baseline Sampling**

Suggestions from the stakeholder group for issues related to baseline sampling that EPA should develop clarification on included how large of a dataset is necessary, how to conduct field turbidity measurements to ensure accuracy, and how to document temporal variability -- changes to groundwater that naturally occur with the passage of time, Schumacher said.

Workshop participants also recommended that EPA include benzene, toluene, ethylbenzene, and xylene compounds, Total Kjeldahl Nitrogen and total organic carbon as analytes when conducting sampling activities at fracking sites. Additionally, stakeholders said that EPA should use the study to attempt to identify compounds that may serve as precursors for toxic disinfection byproducts (DBPs) in drinking water, and assess whether certain precursors make wastewater more difficult to treat, an issue that is worrying drinking water utilities downstream from fracking operations, Schumacher said.

Another recommendation from the Feb. 25 workshop focused on what EPA is seeking to assess when it conducts sampling at contamination sites. "The purpose of our analysis has been forensics -- the source of the contamination" and not on assessing the toxicity level of the contamination, "the group suggested that we should be doing both," Schumacher said.

EPA's next technical workshop is slated for April 16-17 at RTP and will focus on the "Well Construction/ Operation and Subsurface Modeling" aspects of the fracking study. -- *Bridget DiCosmo* ( [bdicosmo@iwpnews.com](mailto:bdicosmo@iwpnews.com) This e-mail address is being protected from spambots. You need JavaScript enabled to view it )